

In particular, the rejection simply states “claims 5-7 does [sic] not produce any tangible results and also it fails to disclose any tangible medium in the claims. As such, claims are not limited to statutory subject matter and are therefore nonstatutory.”

However, claims 5-7 specify an apparatus, namely a *channel adapter*. The channel adapter includes a “table configured for storing entries identifying respective work queue entries” (each entry including a work queue entry field, a first link field, and a second link field), an “acknowledgement detector” and “a table manager configured for adding the table entries based on transmission of the respective work queue entries....” Hence, the claimed channel adapter is directed to *a machine* that performs a useful operation, namely “forming first and second linked lists identifying a transmit sequence of the transmitted work queue entries and an acknowledgement sequence of the transmitted work queues, respectively.”

Further, the specification describes that “the multiple link fields enable the work queue entry table to be shared for respective linked lists specifying respective attributes relative to the stored work queue entries”, where “a single table can be used to store multiple attributes of transmitted work queue entries, including the sequence of transmission, plus the sequence of received acknowledgements.” (Page 2, lines 27-29 and page 3, lines 13-14). The specification also describes that “transmitted WQEs awaiting receipt of acknowledgment messages can be efficiently managed and maintained using multiple fields configured for specifying respective linked lists for respective attributes of the WQEs, *optimizing memory utilization within the channel adapter*.” (Page 11, lines 2-8).

It is well settled that “[i]f a claim defines a useful machine or manufacture by identifying the physical structure of the machine or manufacture in terms of its hardware or hardware and software combination, it defines a statutory product.” MPEP §2106.IV.B.2(a) at 2100-14 (Rev. 2, May 2004) (citing *In re Lowry*, 32 USPQ2d 1031, 1034-35 (Fed. Cir. 1994); *In re Warmerdam*, 31 USPQ2d 1754, 1760 (Fed. Cir. 1994). Further: “[a] claim limited to a machine or manufacture, which has a practical application in the technological arts, is statutory. ***In most cases, a claim to a specific machine or manufacture will have a practical application in the technological arts.*** MPEP §2106.IV.B.2(a) at 2100-15 (citing *In re Alappat*, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994) (“the claimed invention as a whole is directed to a combination of interrelated elements which combine to form a machine for converting discrete waveform data samples into anti-aliased pixel illumination intensity data to be displayed on a display means. This is not a disembodied mathematical concept which may be characterized as an ‘abstract idea,’ but rather a specific machine to produce a useful, concrete, and tangible result.”)).

Further, the Examiner has failed to identify any specific deficiency in the claims. See §MPEP 2106.IV.B at page 2100-11:

If the invention as set forth in the written description is statutory, but the claims define subject matter that is not, the deficiency can be corrected by an appropriate amendment of the claims. In such a case, Office personnel should reject the claims drawn to nonstatutory subject matter under 35 U.S.C. 101, but ***identify the features of the invention that would render the claimed subject matter statutory if recited in the claim.***

For these and other reasons, the §101 rejection must be withdrawn.

Claims 1 and 3-7 stand rejected under 35 USC 102(e) in view of U.S. Patent No. 6,611,883 to Avery. This rejection is respectfully traversed.

Each of the independent claims 1 and 5 specify formation of first and second linked lists specifying respective transmit sequence and acknowledgment sequence of transmitted work queue entries. In particular, each of the independent claims specify that each entry of a table includes a work queue entry field that specifies a transmitted work queue entry, a first link field, and a second link field. The first link field is configured for referencing another entry in the table for a subsequently transmitted work queue entry relative to the corresponding entry, and the second link field is configured for referencing another entry having received a subsequent acknowledgment.

Hence, the first link field enables formation of a first linked list specifying a transmit sequence of the transmitted work queue entries, and the second link field enable formation of a second linked list specifying an acknowledgment sequence of the transmitted work queue entries. Consequently, memory utilization within the channel adapter is optimized based on utilizing a single table having multiple entries for respective linked lists identifying respective attributes of the transmitted work queue entries.

These and other features are neither disclosed nor suggested in the applied prior art.

Avery provides no disclosure whatsoever of utilizing first and second fields in a table entry enabling formation of *first and second linked lists* identifying a transmit sequence and an acknowledgment sequence of the transmitted work queue entries, respectively, as claimed.

Rather, Avery describes a system for prefetching data for DMA read operations using the same work queue pair that was used to perform the initial DMA read (col. 11, lines 16-25).

In particular, Avery describes with respect to Figure 7 that an InfiniBand address map 754 is used to associate work queue entries, such as entries 703 and 705, with regions (e.g., 722) in the PCI address space 720 (col. 8, lines 55-60). Each address map entry (e.g., 756, 758) includes a queue pair pointer (e.g., 766) that identifies a corresponding work queue entry (e.g., 702, 704). Hence, a particular work queue entry (e.g., 703, 705) is identified by its queue pair pointer (QP PTR) in the corresponding address map entry (e.g., 756, 758) (column 9, lines 3-7 and 46-47).

In response to a PCI master device presenting a PCI address (having a page identifier at 750 and a region identifier 751), the PCI Segment Map 752 validates the PCI address and returns a pointer to a work queue pair that will be used in the DMA transfer (based on the transfer size); the remote key (R_KEY) from the corresponding address map entry (e.g., 758) is combined with the page identifier 750 and the region identifier 751 to generate an InfiniBand address 760: this InfiniBand address is inserted into the work queue entry (e.g., 703) to process the PCI request. (column 10, lines 7-46).

The work queue entry 703 includes a DMA scoreboard pointer 715 that references a DMA context scoreboard 770: the scoreboard tracks the data tags associated with each data packet that is associated with the given work queue entry (col. 10, lines 54-59). Hence, the DMA context scoreboard 770 tracks the acknowledgments for a given work queue entry.

As apparent from the foregoing, Avery neither discloses or suggests: (1) an entry having a work queue entry field that specifies a transmitted work queue entry, where the entry includes

first and second link fields each configured for referencing another entry in the table; (2) forming a first linked list specifying a transmit sequence of the transmitted work queue entries from the first link fields, or (3) forming a second linked list specifying an acknowledgment sequence of the transmitted work queue entries based on the second link field, as claimed.

Rather, Avery simply describes the number of prefeteches 774 and the number of acknowledgements 776 are associated with a single work queue entry.

Independent claims 1 and 5, however, specify that each entry specifies a transmitted *work queue entry*, and that the first linked list specifies a *transmit sequence* of the *transmitted work queue entries*, and that the second linked list specifies an *acknowledgment sequence* of the *transmitted work queue entries*.

There is no disclosure whatsoever in Avery of any tracking of any transmit sequence for the work queue entries, let alone tracking an acknowledgment sequence of the transmitted work queue entries, as claimed.

For these and other reasons, the 102 rejection of claims 1 and 3-7 should be withdrawn.

It is believed dependent claim 2 is allowable in view of the foregoing.

The Examiner's attention is directed to the concurrently-submitted Information Disclosure Statement.

In view of the above, it is believed this application is and condition for allowance, and such a Notice is respectfully solicited.

To the extent necessary, Applicant petitions for an extension of time under 37 C.F.R.

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Respectfully submitted,
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A handwritten signature in black ink, appearing to read 'L R Turkevich', with a long horizontal stroke extending to the right.

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